

## Siemens Remote Services

**TD**

### Planning Guide

System

Siemens Remote Services (e)

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<b>1</b>	<b>General remarks</b>	<b>4</b>
	General remarks . . . . .	4
	Abbreviations . . . . .	4
<b>2</b>	<b>Planning</b>	<b>6</b>
	Connection Concept . . . . .	6
	Project Manager Tasks . . . . .	9
	"SRS Final Configuration" Checklist . . . . .	9
	Ordering Information . . . . .	10
	Router Selection Criteria . . . . .	10
	Modem . . . . .	10
	Order Form (do not order by e-mail) . . . . .	12
	Network Switch . . . . .	14
	Integration of the Router into the LAN Network . . . . .	15
	LAN Side . . . . .	15
	WAN Side . . . . .	15
	Technical Specifications . . . . .	18
	Cisco 801/805 Routers . . . . .	18
	Cisco 1721 Router . . . . .	18
	Cisco 1603 Router . . . . .	19
	Switch . . . . .	19
	Router Pix Firewall 501 xDSL (IPSEC) . . . . .	20
	Connection Configuration Package for the Central Service Contractor . . . . .	20
<b>3</b>	<b>Additional Information</b>	<b>22</b>
	Security Mechanisms . . . . .	22
	CLI . . . . .	22
	CHAP . . . . .	22
	Call-back . . . . .	22
	NAT (Network Address Translation) . . . . .	22
	Encryption (IPSEC) . . . . .	23
	Fire Wall . . . . .	23
	User Administration and Monitoring . . . . .	23
	Contact Partners for the Project Manager . . . . .	24
	General SRS Process: . . . . .	24
	Technical Router Details: . . . . .	24
<b>4</b>	<b>Changes to Previous Version</b>	<b>25</b>

## General remarks

A series of new services requires remote access to medical systems.

In addition to remote diagnostics, which plays a critical role in the quick localization of an error in a malfunction situation, Siemens also offers services that provide customers with added value. Examples include Utilization Management, SW Distribution, and Lifenet. As a result, **Siemens Remote Services (SRS)** has assumed a critical position within the Med philosophy.

Remote diagnostics play a significant role in the quick localization of errors in a malfunction situation. SIEMENS Remote Services™ (SRS) has taken a critical position in the service philosophy.

Service software functions can be performed in a targeted manner via remote from the Uptime Support Center as well as from the Headquarter Support Center at the factory, e.g. data transfer of error logs, configurations, log files, anonymized patient images, etc. Particularly during the warranty period, remote service will help a system to save costs as well as enable early detection and correction of errors during the introduction of new products. In the case of image quality problems, transfer of the image for analysis is a critical tool. Remote access is thus urgently required and has to be available during system start-up. In the case of image quality problems, image transfer is a critical aid in analysis.

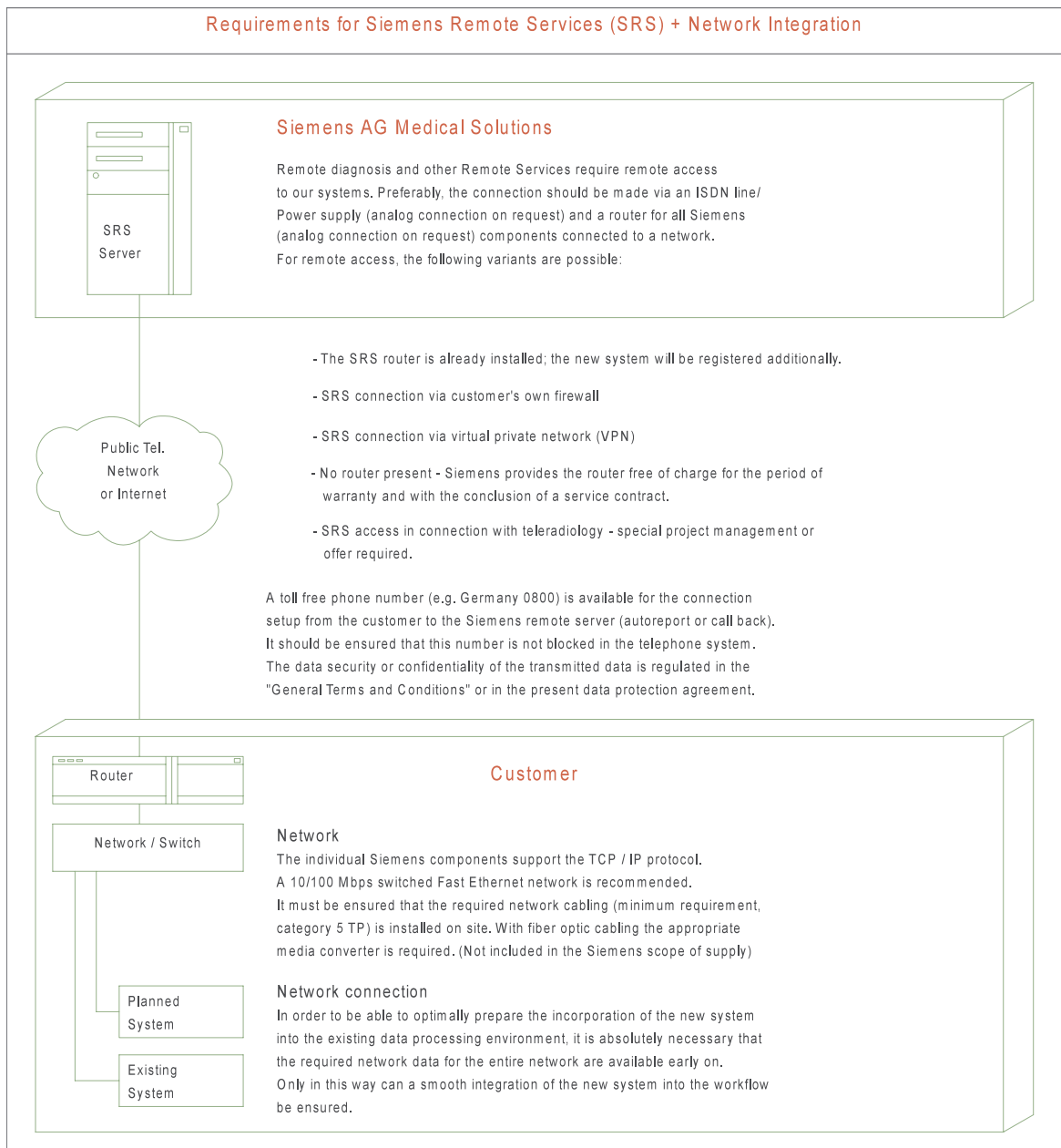
A detailed description regarding access can be found in the chapter "Connection Concept".

## Abbreviations

APPN	Advanced Peer-to-Peer Networking
ADSL	Asymmetrical Digital Subscriber Line
AUI	Attachment Unit Interface
ATM	Asynchronous Transfer Mode
BRI	Basic Rate Interface
CHAP	Challenge Handshake Authentication Protocol
CLI	Calling Line Identification
CSML	Customer Solutions Material Logistics
CSLIP	Compressed Serial Link Internet Protocol
CT	Computed Tomography
DHCP	Dynamic Host Control Protocol
DDR	Dial-on-Demand
EIA/TIA-232	Common physical layer interface standard, developed by EIA and TIA, that supports unbalanced circuits at signal speeds of up to 64 kbps
FW	Fire wall

HDLC	High Level Datalink Control
IANA	Internet Assigned Numbers Authority
IDD	International Direct Dialing
IOS	Internetwork Operating System
IP	Internet Protocol
IPSEC	Internet Protocol Security
ISDN	Integrated Services Digital Network
LAN	Local Area Network
MR	Magnetic Resonance
NIC	Network Information Center
O.A.	Over Asynchronous Transfer Mode
O.E.	Over Ethernet
PABX	Private Automatic Branch Exchange
PAP	Password Authentication Protocol
PCMCIA	Personal Computer Memory Card International Association
POTS	Plain Old Telephone Service
PPP	Point-to-Point Protocol
SLIP	Serial Link Internet Protocol
SNMP	Simple Network Management Protocol
TFTP	Trivial File Transfer Program
VPN	Virtual Private Network
WAN	Wide Area Network

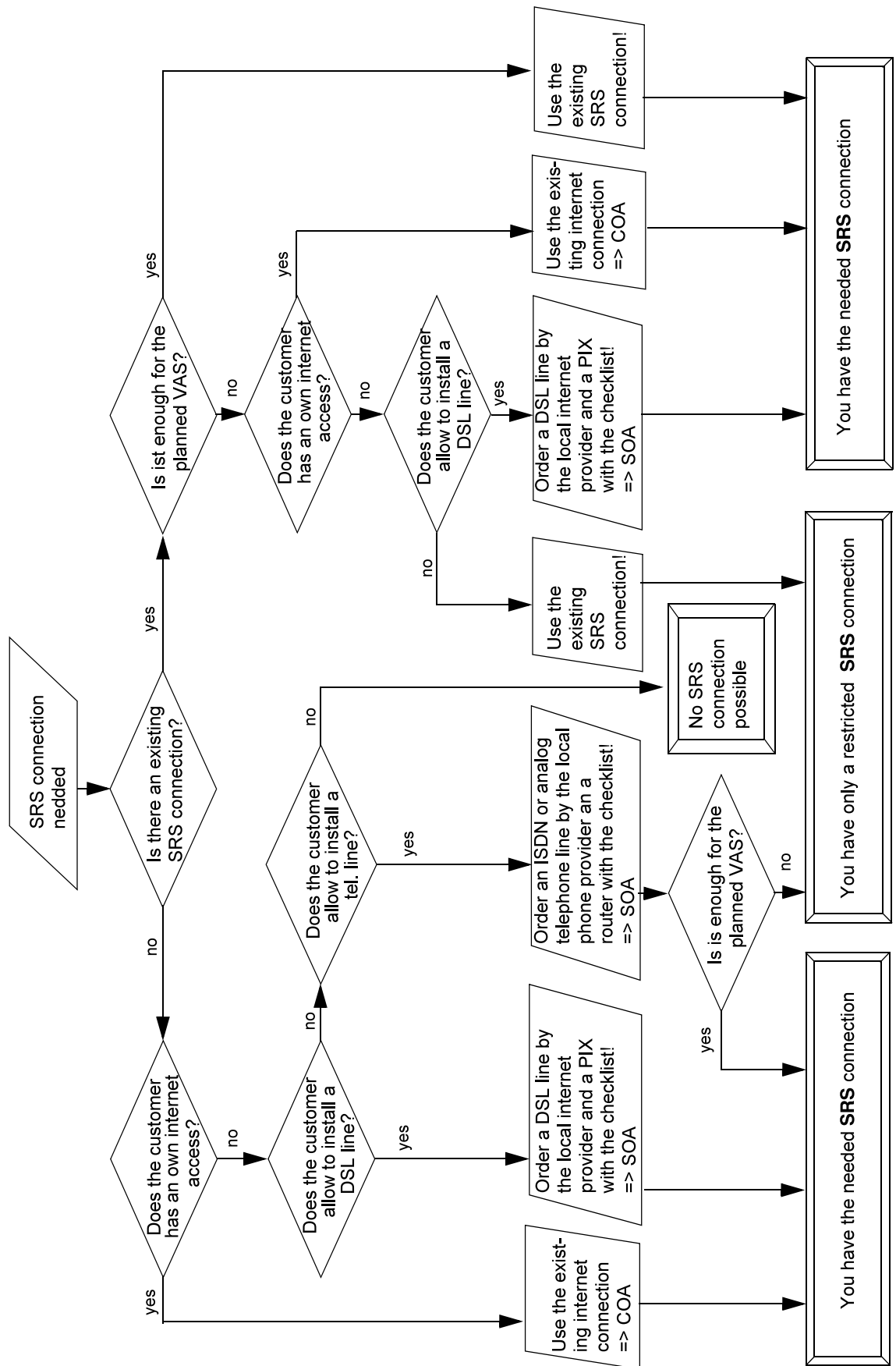
## Connection Concept

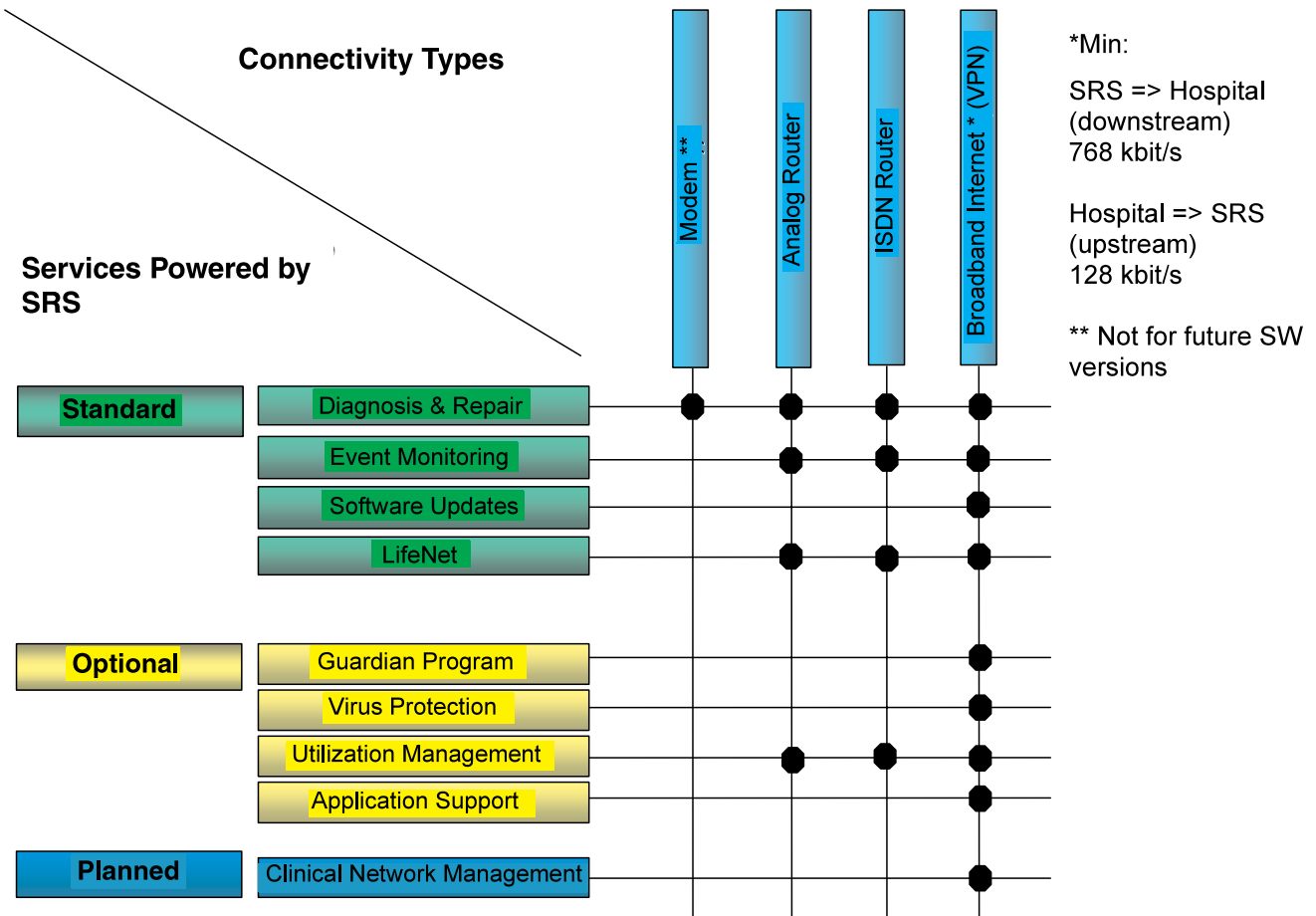


Explanations regarding the illustration:

A router is required, which we leave with our customers at no charge during the warranty period, and afterwards if a service contract has been concluded. The router remains the property of Siemens AG.

- The router should be installed at a central location (e.g.: hospital computer room) to prevent physical access to the router for security reasons.
- The router can be connected to either an ISDN or an analog connection.







## Project Manager Tasks

As of February 1, 2004, a simplified process was established for connecting AX, CT, MR, and SP modalities. All other modalities continue to use the previous process.

### Project Manager tasks for the AX, CT, MR and SP modalities:

- The SRS Checklist is now part of the System Checklist and therefore have to be filled out together (the Serial Number is no longer required).
- If the customer requires connection via his router/firewall or an SRS router already exists, nothing further needs to be done.
- Plan/order the required connections (ISDN/analog; Ethernet, Power): connect the router in accordance with the installation instructions (the router is shipped along with the system)

### Project Manager tasks / procedure for all other modalities:

- If an SRS router already exists or the customer requires connection via his router/fire wall, continue with the last point.
- Plan/order the required connections (ISDN/Analog; Ethernet; Power).
- Order the appropriate router from **CSML** Material Logistics (see "order form", Page 2-3), including an analog modem, if required. For details, see Page 2-2.
- Connect the router in accordance with the installation instructions (should be ready by the time the system is delivered).

**NOTE**

**"Remote Service" has to be enabled on the system in order to check the remote connection.**

- Return the SRS Checklist to the central service contractor for the final router configuration (see the Checklist) or to your local USC, depending on who is to perform the final configuration.

**NOTE**

**Until further notice, the final router configuration will be performed exclusively by the central service contractor.**

**Support from the central service contractor is required if the customer has a fire wall.**

## "SRS Final Configuration" Checklist

**NOTE**

**The SRS Checklist (MS-Word) can be found on the Intranet:**  
**[http://cs.med.siemens.de/For\\_Service/Siemens\\_Remote\\_Services/connectivity/SRS\\_FinalConf\\_Checklist](http://cs.med.siemens.de/For_Service/Siemens_Remote_Services/connectivity/SRS_FinalConf_Checklist)**

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## Ordering Information

### Router Selection Criteria

- ISDN or analog (please note: analog routers are considered the "exception", ISDN routers are the preferred choice).
- Number of medical systems / components ( $\leq 5$  /  $> 5$ ; see overview below)
- Data encryption (general and patient-related)

**NOTE**

**For the core countries in Europe as well as the USA and Canada, only order routers with encryption.**

**For other countries, the customer's wishes must be observed.**

Technology	Number of Systems	Encryption	Router	Part No.
ISDN	> 5	No	RDIAG Router 1603/1721 ISDN	73 82 802
ISDN	> 5	Yes	RDIAG Router 1603/1721 ISDN IPSEC	73 82 810
ISDN	$\leq 5$	No	RDIAG Router 801 ISDN	73 82 869
ISDN	$\leq 5$	Yes	RDIAG Router 801 ISDN IPSEC	73 82 877
Analog <sup>1</sup>	> 5	No	RDIAG Router 1603/1721 Analog	73 82 828
Analog <sup>1</sup>	> 5	Yes	RDIAG Router 1603/1721 Analog IPSEC	73 82 836
Analog <sup>1</sup>	$\leq 5$	No	RDIAG Router 805 Analog	73 82 844
Analog <sup>1</sup>	$\leq 5$	Yes	RDIAG Router 805 Analog IPSEC	73 82 851
DSL	any	Yes	RDIAG Router Pix Firewall 501 IPSEC	84 00 793

1. In cases where there is an analog router connection, a country-specific modem also has to be ordered.

### Modem

Country	Modem Model	Part No.
Germany	MT2834ZDXIe-33-DE	5533356
Japan	MT 2834 ZDXI-33-JP	5533364
Switzerland	MT2834ZDXIe-33-CH	5533372

Country	Modem Model	Part No.
Sweden	MT2834ZDXle-33-SE	5533380
Norway	MT2834ZDXle-33-NO	5533398
Netherlands	MT2834ZDXle-33-NL	5533406
Italy	MT2834ZDXle-33-IT	5533414
Belgium	MT2834ZDXle-33-BE	5533422
United Kingdom	MT2834ZDXle-33-GB	5533430
USA/Canada	MT2834ZDXB-SC	5533463
France	MT2834ZDXle-33-FR	5533448
Austria	MT2834ZDXle-33-AT	5533455

Countries not listed must obtain the modem locally. Only the Multitech model MTX 2834 ZDX modem is permitted.

## Order Form (do not order by e-mail)

Tab. 1

To:	<b>Siemens Medical Solutions</b>	From: (Company)	
Department:	CS ML OP	Department	
		Name:	
Central Fax No.:	+ 49 9131 84 8835	Phone: No.:	
		Fax No.:	
		E-mail:	
Date:		Pages (incl. cover page)	

Tab. 2

<b>Delivery Date:</b>	
<b>Account No. to be charged:</b>	
<b>Remarks</b>	"No charge in accordance with SRS Planning Guide of 06/01"
<b>Modification (Serial No.)</b>	
<b>Misc.</b>	

Tab. 3

<b>Shipping Address (e.g. Hospital / SIEMENS address)</b>				
POS	Part Number	Description		Quantity
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

**Confirmation (by CSML OP)**  
(filled out by CSML OP)

Tab. 4

<b>SAP Number:</b>	
<b>Anticipated delivery date ex. CSML</b>	
<b>Remarks</b>	

## Network Switch

If a local LAN is not available, a small LAN (8 connections) can be set up using a SWITCH.

Switch Model	Part No.
Ethernet Switch 8 Port AT-FS708 (10/100 MBit/s)	30 79 332

**NOTE**

**Network cables are not included in the shipment.**

**NOTE**

**Routers and modems are not invoiced if they are used exclusively for remote service.**

**If the routers are used for other purposes, the country organizations will be charged for any costs incurred.**

## Integration of the Router into the LAN Network

### Prerequisites

- Both areas, i.e., the system and the router, have to access the same IP network.
- Power cables (two cables are included in the router package shipment: 110/240V; 50/60Hz). Plug-in connectors for Europe and USA are included. For other connections, the plug-in connectors have to be purchased locally.

### LAN Side

- Ethernet connection (10BaseT; 10MBit/s, twisted pair)
- The system connections are included in the shipment.  
(3m 10BaseT, twisted pair, 1:1 cable is part of the router package)

<b>NOTE</b>
-------------

**If unique customer IP addresses are not available, the IP addresses can be reserved in the RDiag GUI:**

**<https://srs-portal.med.siemens.de/index.xsql>**

**Use menu Admin -> IR Reservation**

### WAN Side

- DSL with DSL modem: The DSL cable is part of the Pix Firewall package.
- ISDN: The ISDN cable is part of the router package (3m 10 BaseT, twisted pair, 1:1 cable).
- Analog (if ISDN not possible, a direct analog connection must be provided for dialing).

### ISDN BRI Connection, Configuration Requirements

Prior to using a Cisco in the 800/1600 series, you have to order a correctly configured ISDN BRI connection from your local telephone company.

This procedure is significantly different from telephone company to telephone company, on a national and international basis. There are some general rules however:

- Request 2 channels for one telephone number.
- Request CLI (calling line identification). This is also known as Caller ID or automatic number identification (ANI).
- Ask for a "point-to-multipoint service data line" (sub-addressing is required).
- In the USA and Canada, an NT terminal has to be ordered from the telephone company, in addition to the ISDN connection.
- Routers to internal PABX (in-house telephone system) is not recommended to avoid problems with incorrect cable configurations. In the case of a PABX, ensure that the protocol does not differ from the standard ISDN Protocol listed.

**NOTE**

There is a toll-free 0800 number available to dial the RDIAG server. This is possible only if IDD is supported by the provider.

In TK systems, have the country-specific area code enabled (e.g.: Europe int. - 008000; Germany - 0800).

**ISDN Protocol (Required for the "SRS Final Configuration" Checklist)**

The router supports a variety of ISDN switch models. Check the switch model being used by your local ISDN provider.

The ISDN Protocols that are supported by the CISCO 1721/1603/801/805 router ISDN-BRI interface are listed geographically:

	Country	SWITCH TYPE CODE
<b>Australia</b>		
	Australia TS013 switches	basic-ts013
<b>Europe</b>		
	Germany, UK and others; NET3 ISDN switches	basic-net3 Euro ISDN S <sub>0</sub>
	Norway NET3 switches (phase 1)	basic-nwnet3
	France VN2 ISDN switches	vn2
	France VN3 ISDN switches	vn3
<b>Japan</b>		
	Japan NTT ISDN switches	ntt
<b>North America</b>		
	AT&T basic rate switches	basic-5ess
	NT DMS-100 basic rate switches	basic-dms100
	National ISDN-1 switches	basic-ni1
<b>New Zealand</b>		
	New Zealand Net3 switches	basic-nznet3



## DSL Requirements

### Bandwidth

If anti-virus pattern distribution is enabled, the bandwidth should be at least 768/128k upstream/downstream.

### IP address requirements

An Internet routeable IP address is required.

It has to be static and always be the same IP address.

The address must not be translated anywhere in the provider's network and be not part of the

addresses intended for private use.

### Flat Rate

A connection that is always on is required for SRS. For financial reasons, a flat rate without any volume and time limit is required.

### Additional Requirements xDSL

Any kind of DSL (Digital Subscriber Line) is supported.

Siemens supports PPPoE but does not support PPPoA. If the latter protocol is used, it has to be terminated in the modem.

The DSL modem has to be supplied by the provider.

## Technical Specifications

### Cisco 801/805 Routers

#### Physical Specifications

- Dimensions (H x W x D)
  - 5.1 x 24.6 x 21.1 cm (2.0 x 8.3 x 9.9 inches)
- Weight
  - 0.66 kg

#### Environmental Specifications

- Temperature
  - Operating temperature: 0 to 40 C (32 to 104 F)
- Relative humidity
  - At operating temperature: 10% to 85%

#### Power Supply

- External tabletop power supply:
  - USA 110 V alternating current, 60 Hz
  - United Kingdom and Singapore 240 V alternating current, 50 Hz
  - Continental Europe 220 V alternating current, 50 Hz
  - Japan 100 V alternating current, 50 - 60 Hz

### Cisco 1721 Router

Console port RJ-45

Auxiliary port RJ-45

Ethernet port RJ-45

- Dimensions
  - H x W x D 3.1 x 11.2 x 8.7 in. (7.85 x 28.4 x 22.1 cm)
- Weight
  - Weight 2.6 lb (1.18 kg)
  - With two WICs 2.9 lb (1.32 kg)

- Power Supply
  - External Universal AC/DC switching Supplies +5V, +12V and -12V
  - On-board Supplies 3.3V and -5V
  - Power consumption 20W
- Operating Specifications
  - Operating temperature 32° to 104°F (0 to 40°C)
  - Storage temperature -40° to 149°F (-40 to 65°C)
  - Operating humidity 10% to 85%, noncondensing

## Cisco 1603 Router

## Physical Specifications

- Dimensions (H x W x D)
  - 5.56 x 22.02 x 28.32 cm (5.56 x 11.15 x 8.67 inch)
- Weight
  - 0.82 kg

## Environmental Specifications

- Temperature
  - Operating temperature: 0 to 40 C (32 to 104 F)
- Relative humidity
  - At operating temperature: 10% to 85%

## Power Supply

- AC input voltage 100 to 240 VAC
- AC input current 0.2 to 0.4 A
- Frequency 50 to 60 Hz

## Switch

- Type
  - ATI AT FS708 10/100Mbps Auto Negotiation MDI/MDI-X Switch for Port 8

- Dimensions
  - 249mm x 114mm x 38mm / 1.95 kg, without fan

## Router Pix Firewall 501 xDSL (IPSEC)

### Hardware Requirements

#### Environmental Operating Ranges

Temperature: 32 to 104° F (0 to 40° C)

Relative humidity: 10 to 90%, noncondensing

Altitude: 0 to 6500 feet (2000 m)

Shock: 250 G, < 2 ms

Vibration: 0.41 Grms<sup>2</sup> (3-500 Hz) random input

#### Power

Range Line Voltage: 100V to 240V AC

Nominal Line Voltage: 100V to 240V AC

Current: 0.051 Amps (at 115V)

Frequency: 50-60 Hz, single phase

Power cord: The device is delivered with a standard power cord for Europe and the U.S.

If your country uses a different power cord, it has to be supplied locally.

#### Hardware required to run the the setup software

You need a computer/laptop running Windows NT/2000/XP with a CD-Rom drive and serial port

to run the setup software at the installation site.

## Connection Configuration Package for the Central Service Contractor

The following packages are available for the "Final Configuration":

- **Standard**

An SRS router is already installed at the customer site.

- The service contractor adds a new system to the remote server.

- **Extended**

An SRS router is not installed at the customer site.

- A new, "pre-configured" SRS router is installed and configured at the customer site ("final configuration" applies only for the routers listed on Page 2-2).

- **Fire Wall**

The customer has his own router/fire wall infrastructure.

- The interface between the customer fire wall and the remote server is clarified and configured.

- **VPN**

VPN (Virtual Private Network)

- Access via Internet must be available or established. The connection via Internet is possible using VPN technology. At this time, connection is made via the customer's own systems (router, fire wall, etc.). These must support VPN. IPSEC is used as the VPN Protocol. In the future, VPN via ADSL will be offered in some countries. When it becomes available, it will be absolutely necessary for the Internet provider to have a static address.

- **PIX**

Siemens DSL Router or VPN Router

## Security Mechanisms

Basically, different networks have different security requirements. Each network has to be considered individually to ensure that a reasonable security policy is implemented. If the local network (LAN) is accessible to the public via appropriate access nodes, there is a significantly increased risk of unauthorized data access. To minimize this risk, access products such as ISDN routers use standardized protocols for authentication and encryption.

- Analog
  - Call-back
  - Authentication of PPP CHAP
  - IPSEC Encryption
- ISDN
  - Calling Line Identification (CLI)
  - Analog / ISDN
  - Authentication CHAP
  - IPSEC Encryption

### CLI

Calling line identification (CLI) (also: caller ID) permits an incoming call to be checked for its origin telephone number. Thus, a criterion for access to the network may be established (in this case: D-channel of the ISDN). CLI requires a switching station that supports call number transfer (with Euro ISDN Standard).

### CHAP

CHAP is used to authenticate the two partners when a connection is established. The passwords are transferred in encrypted format. Two procedures are available: "local" and "remote" authentication relative to the caller. Many manufacturers support only remote authentication, i.e. the caller authenticates himself only with the called party. With local authentication, the party called must also authenticate himself with the caller.

### Call-back

If the router is called, it first attempts to authenticate the partner via PPP CHAP (see standard options). If the partner is recognized, the connection is terminated and a call-back is initiated. This prevents a stolen password from being used from any telephone line.

### NAT (Network Address Translation)

If certain IP address ranges that SIEMENS must use for the RDIAG server are specified by the customer, IP address translation (NAT) is also required. NAT (Network Address Translation) makes it possible for "private" networks with unofficial address ranges to link to e.g. the Internet. Translation of the addresses is done directly in the components (rout-

ers) that connect the two networks to each other. The particular LAN is hidden to the outside by the router, all data appears to come from the router itself. This requirement for NAT usually exists when the customer is operating a fire wall.

### Encryption (IPSEC)

With this option, the entire data stream that goes over public lines is encrypted. The IPSEC standard with a code length of 128 bits is always used. Components from the same manufacturer have to be used on both ends because the standard currently permits limited interpretation, and thus limited implementation parameters for manufacturers.

### Fire Wall

Special requirements, which are listed in the SRS Final Configuration checklist, exist for operation of RDIAG through a fire wall system. (Chapter 5.3 - Customer Administrated Routers).

### User Administration and Monitoring

Siemens' central remote server can determine at any time when and which users have logged into the system. For more information please contact the SRS Helpdesk.

With every access, three independent security levels have to be passed with the network versions:

1. Router: Our specialist in the UPTIME Service Center requires the user name, the password, and (depending on what has been agreed) a call-back to pass this requirement.
2. Fire wall (optional): Only known users and procedures (Telnet, HTTP, FTP, etc.) can pass through this security level. Every access and even every attempt at access is documented without exception.
3. System Access: Before reaching the unit, the user name and password are requested multiple times. In this regard, the procedure and the routine correspond to that for the modem version.

## Contact Partners for the Project Manager

### General SRS Process:

mail to: RemoteServer@med.siemens.de

### Technical Router Details:

mail to: srs\_final@med.siemens.com



Chapter	Section	Changes
Planning	Connection Concept	Connectivity flow chart and matrix
Planning	LAN Side	New IP reservation tool
Planning	WAN Side	DSL connection
Planning	DSL requirements	Changed

